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This is rather simple, all you do is have an 43 bit LFSR, that is loaded with the data in **parallel** and **scramble** in **parallel**. in VHDL: ...
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The common technique as John Savard suggested is to use an LFSR to provide ... I have a project where we need to **scramble** (and unscramble) a **parallel** data ...
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the representation of Sect.2 there are 256 **parallel** generators, one for every ... corresponds to the generation of the MSB bit of a 8-bit word to **scramble** ...
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1 [An Improved FPGA Implementation of the Modified Hybrid Hiding Encryption Algorithm \(MHHEA\) for Data Communication Security](#)

Hala A. Farouk, Magdy Saeb

 March 2005 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 3 DATE '05**

Publisher: IEEE Computer Society

Full text available: pdf(230.58 KB)

 Additional Information: [full citation](#), [abstract](#), [index terms](#)

The hybrid hiding encryption algorithm, as its name implies, embraces concepts from both steganography and cryptography. In this exertion, an improved micro-architecture Field Programmable Gate Array (FPGA) implementation of this algorithm is presented. This design overcomes the observed limitations of a previously-designed micro-architecture. These observed limitations are: no exploitation of the possibility of parallel bit replacement, and the fact that the input plaintext was encrypted serial ...

Keywords: FPGA, micro-architecture, data communication security, encryption, steganography, cryptography, algorithm

2 [Cost-Efficient Block Verification for a UMTS Up-Link Chip-Rate Coprocessor](#)

Klaus Winkermann, Hans-Joachim Trylus, Dominik Stoffel, Görschwin Fey

 February 2004 **Proceedings of the conference on Design, automation and test in Europe - Volume 1 DATE '04**

Publisher: IEEE Computer Society

Full text available: pdf(150.10 KB)

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ASIC designs for future communication applications cannot be simulated exhaustively. Formal Property Checking is a powerful technology to overcome the limitations of current functional verification approaches. The paper reports on a large-scale experiment employing the CVE property checker for verifying the block-level functional correctness of a large ASIC. This new verification methodology achieves substantial quality and productivity gains. The two biggest advantages are: Coding and Verification ...

3 [Design analysis techniques: Energy-aware design techniques for differential power analysis protection](#)

Luca Benini, Alberto Macii, Enrico Macii, Elvira Omerbegovic, Fabrizio Pro, Massimo Poncino

 June 2003 **Proceedings of the 40th conference on Design automation DAC '03**

Publisher: ACM Press

Full text available: pdf(286.41 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Differential power analysis is a very effective cryptanalysis technique, that extracts information on secret keys by monitoring instantaneous power consumption of coprocessors. To protect against differential power analysis, power supply noise is added in cryptographic computations, at the price of an increase in power consumption. We present a novel technique, based on well-known power-reducing transformations coupled with randomized clock gating, that introduces a significant amount of scra ...


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1 [A Survey of Parallel Machine Organization and Programming](#)



David J. Kuck

 March 1977 **ACM Computing Surveys (CSUR)**, Volume 9 Issue 1

Publisher: ACM Press

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2 [A Self Managing Secondary Memory system](#)



Manlio DeMartinis, G. Jack Lipovski, Stanley Y.W. Su, J. K. Watson

 January 1976 **ACM SIGARCH Computer Architecture News , Proceedings of the 3rd annual symposium on Computer architecture ISCA '76**, Volume 4 Issue 4

Publisher: ACM Press

 Full text available: [pdf\(909.18 KB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A Self Managing Secondary Memory (SMSM) organization is proposed herein, in which hardware directly assists the storage, retrieval and management of arbitrary length records on such devices as fixed head discs or charge coupled devices (CCD's). This paper emphasizes some of the techniques used to implement an SMSM system. In an SMSM, fixed length words are organized into variable length records, and these records are packed into a file. The first word of the record, a label, can ...

3 [Performance analysis of MD5](#)



Joseph D. Touch

 October 1995 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '95**, Volume 25 Issue 4

Publisher: ACM Press

 Full text available: [pdf\(1.04 MB\)](#)

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MD5 is an authentication algorithm proposed as the required implementation of the authentication option in IPv6. This paper presents an analysis of the speed at which MD5 can be implemented in software and hardware, and discusses whether its use interferes with high bandwidth networking. The analysis indicates that MD5 software currently runs at 85 Mbps on a 190 Mhz RISC architecture, a rate that cannot be improved more than 20-40%. Because MD5 processes the entire body of a packet, this data ra ...

4 [Computing curricula 2001](#)


 September 2001 **Journal on Educational Resources in Computing (JERIC)**

Publisher: ACM Press

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5

[An Improved FPGA Implementation of the Modified Hybrid Hiding Encryption](#)

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Hala A. Farouk, Magdy Saeb

March 2005 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 3 DATE '05**

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The hybrid hiding encryption algorithm, as its name implies, embraces concepts from both steganography and cryptography. In this exertion, an improved micro-architecture Field Programmable Gate Array (FPGA) implementation of this algorithm is presented. This design overcomes the observed limitations of a previously-designed micro-architecture. These observed limitations are: no exploitation of the possibility of parallel bit replacement, and the fact that the input plaintext was encrypted serial ...

Keywords: FPGA, micro-architecture, data communication security, encryption, steganography, cryptography, algorithm

6 LIPP - a SIMD multiprocessor architecture for image processing

T. Ericsson, P. E Danielsson

June 1983 **ACM SIGARCH Computer Architecture News , Proceedings of the 10th annual international symposium on Computer architecture ISCA '83**, Volume 11 Issue 3

Publisher: IEEE Computer Society Press, ACM Press

Full text available:  pdf(563.81 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


LIPP (Linköping Image Parallell Processor) is a multiprocessor system intended mainly for image analysis and image processing but even other computing tasks where large amount of data should be manipulated in forms of matrices, such as weather forecasts or other related problems namely systems of differential equations. The processors within the processor array are of bit-serial type with the capability of directly processing data with wordlengths in the range of 1 bit to 32 bits in on ...

7 The state of the art in distributed query processing

Donald Kossmann

December 2000 **ACM Computing Surveys (CSUR)**, Volume 32 Issue 4

Publisher: ACM Press

Full text available:  pdf(455.39 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Distributed data processing is becoming a reality. Businesses want to do it for many reasons, and they often must do it in order to stay competitive. While much of the infrastructure for distributed data processing is already there (e.g., modern network technology), a number of issues make distributed data processing still a complex undertaking: (1) distributed systems can become very large, involving thousands of heterogeneous sites including PCs and mainframe server machines; (2) the stat ...

Keywords: caching, client-server databases, database application systems, dissemination-based information systems, economic models for query processing, middleware, multitier architectures, query execution, query optimization, replication, wrappers

8 Advances in design-for-testability methods: Secure scan: a design-for-test architecture for crypto chips

Bo Yang, Kaijie Wu, Ramesh Karri

June 2005 **Proceedings of the 42nd annual conference on Design automation DAC '05**



Publisher: ACM Press

Full text available:  pdf(234.65 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Scan-based Design-for-Test (DFT) is a powerful testing scheme, but it can be used to retrieve the secrets stored in a crypto chip thus compromising its security. On one hand, sacrificing security for testability by using traditional scan-based DFT restricts its use in privacy sensitive applications. On the other hand, sacrificing testability for security by abandoning scan-based DFT hurts product quality. The security of a crypto chip comes from the small secret key stored in a few registers and ...

Keywords: crypto hardware, scan-based DFT, security, testability



9 Scalable high-speed prefix matching

 Marcel Waldvogel, George Varghese, Jon Turner, Bernhard Plattner
 November 2001 **ACM Transactions on Computer Systems (TOCS)**, Volume 19 Issue 4
 Publisher: ACM Press
 Full text available:  pdf(933.02 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Finding the longest matching prefix from a database of keywords is an old problem with a number of applications, ranging from dictionary searches to advanced memory management to computational geometry. But perhaps today's most frequent best matching prefix lookups occur in the Internet, when forwarding packets from router to router. Internet traffic volume and link speeds are rapidly increasing; at the same time, a growing user population is increasing the size of routing tables against which p ...


Keywords: collision resolution, forwarding lookups, high-speed networking

10 A tutorial on uniform variate generation

 P. L'Ecuyer
 October 1989 **Proceedings of the 21st conference on Winter simulation WSC '89**
 Publisher: ACM Press
 Full text available:  pdf(777.59 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



In typical stochastic simulations, randomness is produced by generating a sequence of independent uniform variates (usually real-valued between 0 and 1, or integer-valued in some interval) and transforming them in the appropriate way. In this tutorial, we examine practical ways of generating such variates on a computer. We compare them in terms of ease of implementation, efficiency, flexibility, theoretical support, and statistical robustness. We look in particular at the following classes of ge ...

11 Wireless communication and networking: ASIP architecture for multi-standard wireless terminals

D. Lo Iacono, J. Zory, E. Messina, N. Piazzese, G. Saia, A. Bettinelli
 March 2006 **Proceedings of the conference on Design, automation and test in Europe: Designers' forum DATE '06**
 Publisher: European Design and Automation Association
 Full text available:  pdf(799.10 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

This paper presents the Block Processing Engine (BPE), an Application Specific Instruction-Set Processor (ASIP) explicitly designed for the implementation of multi-standard wireless terminals. Thanks to a high level of parallelism and a consistent use of pipeline, the BPE architecture fully satisfies stringent real-time constraints imposed by emerging technologies. Its efficiency has been proven through the implementation, the physical synthesis for the CMOS 90nm STM technology and the FPGA prot ...

12 Partial reconfigurable architectures: Task scheduling for heterogeneous reconfigurable computers

 Ali Ahmadinia, Christophe Bobda, Dirk Koch, Mateusz Majer, Jürgen Teich
 September 2004 **Proceedings of the 17th symposium on Integrated circuits and system design SBCCI '04**
 Publisher: ACM Press
 Full text available:  pdf(131.32 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We consider the problem of executing a dynamically changing set of tasks on a reconfigurable system, made upon a processor and a reconfigurable device. Task execution on such a platform is managed by a scheduler that can allocate tasks either to the processor or to the reconfigurable device. The scheduler can be seen as part of an operating system running on the software or as core in the reconfigurable device. For each tasks to be executed on reconfigurable device, an equivalent implementation ...

Keywords: FPGA, hardware preemption, partial reconfiguration, placement, reconfigurable computing, scheduling

13 Architectural features of CASSM: A Context Addressed Segment Sequential Memory

G. J. Lipovski
 April 1978 **Proceedings of the 5th annual symposium on Computer architecture ISCA**